REMARKS

Upon entry of the present amendment, claims 1-14 will remain pending in the above-identified application and stand ready for further action on the merits. The amendments made herein to the claims do not incorporate new matter into the application as originally filed.

For example, in pending claims 3, 4, 10 and 11, the term "IVb group element" is changed to "at least one element selected from the group consisting of elements of group 14". In addition, in pending claims 6 and 13, the term "concave-convex pattern" has been changed to "a pattern of concave or convex". The above changes have been made in an effort to more clearly and distinctly set forth the inventive discoveries that the applicants regard as their own, while avoiding terms that the Examiner has previously indicated are indefinite.

It is also noted that the instant amendment corrects a typographical error in claim 11 that occurred in the preliminary amendment filed on September 29, 2003, wherein it was erroneously indicated that original claim 11 depended from "claim 19". As such, the instant amendment to claim 11 also clarifies that claim 11 actually depends from claim 10.

Accordingly, entry of the instant amendment is respectfully requested at present.

35 USC § 112 Claim Rejections

Claims 1-14 have been rejected under the provisions of 35 USC § 112, second paragraph. Reconsideration and withdraw of this rejection is respectfully requested based on the amendments made herein to the claims, and the following additional considerations.

As stated in M.P.E.P. §§ 2173.01 and 2173.02 :

> *A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what*

they regard as their invention essentially in whatever terms they choose so long as any special meaning assigned to a term is clearly set forth in the specification. See MPEP § 2111.01. Applicant may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. As noted by the court in In re Swinehart, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought.

The examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. 112, second paragraph, is whether the claim meets the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available. When the examiner is satisfied that patentable subject matter is disclosed, and it is apparent to the examiner that the claims are directed to such patentable subject matter, he or she should allow claims which define the patentable subject matter with a reasonable degree of particularity and distinctness. Some latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire. Examiners are encouraged to suggest claim language to applicants to improve the clarity or precision of the language used, but should not reject claims or insist on their own preferences if other modes of expression selected by applicants satisfy the statutory requirement.

Accordingly, because each of pending claims 1-14 particularly and distinctly set forth the inventive discovery that the applicants regard as their own, it follows that each of pending claims 1-14 is fully acceptable under the provisions of 35 USC § 112 as each claim is currently drafted. Any contentions of the USPTO to the contrary must be reconsidered at present.

35 USC § 103(a) Claim Rejections

Claims 1-14 have been rejected under the provisions of 35 USC § 103(a) as being obvious over the disclosure of Ikeda et al. EP 1,246,278 (EP '278). Reconsideration and withdraw of this rejection is respectfully requested based on the following considerations.

Legal Standard for Determining Prima Facie Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet,* 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999).

"In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the

proposed substitution, combination, or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab,* 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee,* 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

Distinctions Over the Cited EP '278 Reference of Ikeda et al.

In order to release stress by Li intercalation and prevent the generation of cracks in the surface of electrode and the like (*e.g.*, see paragraph **[0012]** of the English specification), the characteristic structure of the instant invention is as follows:

1. The inventive electrode comprises:

   A) a current collector of a metallic material not to be alloyed with Li, and

   B) a pattern of dots formed on the current collector, which is a metallic material able to be alloyed with Li; and

2. The diameter of each dot is 1-500 micrometers.

As described above, the electrode according to this invention can control effectively crack generating and separation between the current collector and the active material by stresses due to volume change at the time of electric charge and discharge, while fully securing a sufficient reaction area of the electrode. Therefore, the electrode according to the invention having an excellent efficiency of charge and discharge as well as an excellent rate of capacity maintenance in a cycle, can provide a non-aqueous electrolyte secondary battery with an ability of charge and discharge even at the time of large electric current as well as a high capacity.

In contrast to the instant invention, there is disclosed in the EP '278 reference of Ikeda et al. (see paragraphs **[0019]** and **[0020]** thereof):

> ***[0019]*** *In the present invention, it is preferred that the thin film is divided into columns by gaps formed therein in a manner to extend in its thickness direction and the columnar portions are at their bottoms adhered to the current collector. It is also preferred that a thickness portions of the thin film that occupies at least a half of its thickness is preferably divided into columns by such gaps.*
>
> ***[0020]*** *Preferably the gaps are formed by the expansion and shrinkage of the thin film,....*

Additionally from the sectional views of the electrodes shown in Figs. 10 to 14 and Figs. 19 to 26 of the EP '278 reference , the columns are formed with gaps in the upper direction, but there are no gaps between the columns on the current collector and the gaps are formed by the expansion and shrinkage of the thin film. That means the occupancy rate of the columns on the current collector is almost 100%.

Accordingly, there is no teaching concerning the structural feature shown by that the diameter of each dot is 1-500 micrometers, and the occupancy rate of the dots on the current collector is 50 - 90% (as is recited in the instant claims).

Our inventive structure can make big effective differences, which are clear from the data shown in Table 1 between Examples 1, 2 and Comparative Example 1. Table 1 is reproduced below for the Examiner's convenience (*see* **[0053]** at page 20 of the originally filed application).

[Table 1]

	Capacity [mAh/g]	Charge and discharge efficiency [%]	Load characteristic (%)		Cycle characteristics (%) @50 cycle
			1C discharge	2C discharge	
Embodiment 1	900	95	85	80	90
Embodiment 2	900	95	80	75	85
Comparison example1	900	90	65	50	50

From the above Table 1, it can be understood that the non-aqueous electrolyte secondary battery of Examples 1 and 2 has a higher efficiency of electric charge and discharge efficiency and a better performance in the load characteristic and cycle characteristics as compared with Comparative Example 1. A description of the production of the three batteries reported in the above table is set forth at pages 16-18 of the application (see paragraphs **[0047]** to **[0050]**). In this respect, the battery of Comparative Example 1 is disclosed in paragraph **[0049]** of the application as follows:

[0049]
<Comparative Example 1>

Except that a foil of copper before forming a pattern by photoresist has been used, Sn electrolysis metal plating and heat treatment were performed in the same condition as Example 1, and a disk-like negative electrode with a diameter of 16 mm was produced. In this case, a uniform Sn thin film with a thickness of 5 micrometers was formed on a current collector.

Accordingly, based on such considerations, it is clear that the cited EP '278 reference of Ikeda is incapable of rendering the instant invention obvious as claimed, since it provides no teaching or motivation to those of ordinary skill in the art that would allow them to arrive at the instant invention as claimed. Any contentions of the USPTO to the contrary must be reconsidered at present.

CONCLUSION

Based upon the amendments and remarks submitted herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that each of pending claims 1-14 under consideration at present is allowed and patentable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: June 21, 2006

Respectfully submitted,

By _____

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